

processing instrument.

[0017] Such a carrying tray can then be used not only for holding the storage well(s) during supply to a user but also in an immunoassay machine.

[0018] An example of an array of storage wells 5 according to the invention will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of the array from above;

Figure 2 is a section taken on the line 2-2 in Figure 1 but showing a biochip in one of the storage wells;

Figure 3 is a perspective view of the section shown in Figure 2; and,

Figure 4 is a perspective view of a carrying tray for the array of storage wells.

[0019] Figure 1 illustrates an array of three storage wells 1-3 formed from a one-piece plastics moulding of P.V.C. or polypropylene. For the reasons given above, the plastics material incorporates a black pigment. Each storage well 1-3 has a similar form and as can be seen in Figure 1 is substantially square in plan. For convenience, only the storage well 1 will be described in detail.

[0020] The storage well 1 has a base 4 and a sidewall 5 surrounding the base. As can be seen in Figure 2, the sidewalls 5 of each storage well are integrally formed at the junctions between the storage wells.

[0021] Protrusions 6 are moulded at each end of the array to enable the array to be handled easily.

[0022] Each sidewall 5 has an upper section 7 which is substantially vertical with respect to the base 4 and a lower section 8 which tapers inwardly. The taper terminates just short of the base 4 so as to define a region 9 having a width and height corresponding to that of a biochip 10. Typical array dimensions are: 42mm long, 9mm high and 14mm wide at the top.

[0023] Following construction of the array of storage wells 1-3, each is supplied with a biochip 10. The biochips 10 can be prepared in any conventional manner so as to attach ligands on respective reaction sites. For example, ligands could be immobilized by means of microfluidic dispensing of the ligand onto the substrate, which is chemically activated. Alternative chemical or physical methods could be used. It is important that the method of immobilisation, e.g. covalent immobilisation, is such that ligands are not released during incubation and washing steps. Each chip which has dimensions 10mm x 10mm and is about 1mm thick is then dropped into the respective storage well 1-3 and one such biochip 10 is shown in the storage well 1 in Figures 2 and 3.

[0024] Each biochip 10 is then secured in the base of the storage well by cold or hot forming bumps 11 on at least one side section of the sidewall 5. These bumps may be either preformed for press fitting or post-formed after insertion of the biochip 10.

[0025] As well as being tapered, the inner surfaces of the sidewalls 5 are preferably provided with a polished

finish to reduce the curvature of the liquid meniscus and minimise optical aberrations.

[0026] Following these steps, the set of three storage wells can then be prepicked in an individual sealed "bubble" on a tape forming a roll for reel dispensing. However, in the preferred approach, three sets of storage well arrays of the type shown in Figure 2 are loaded onto a carrying tray 20 as shown in Figure 4. This carrying tray is made of a plastics moulding and has two sets of crossbars 21,22 extending between opposite sidewalls 23,24 respectively. Nine openings 25 are defined into which the respective storage wells can be located. Each set of three storage wells 1-3 is loaded parallel to the crossbars 21 with the crossbars 22 entering into corresponding recesses 30 between adjacent storage wells. The loaded carrier tray is then sealed in suitable packing materials for transportation. The user can then either remove the storage wells from the carrier tray or, preferably, leave them in place and use the carrier tray to move the storage wells about the immunoassay process, for example as described in more detail in our copending European Patent Application No. 98307706.6.

[0027] A further option is to locate a number of the trays shown in Figure 4 with loaded storage wells into individual compartments of a stack defined by a housing. That housing can then be packaged for transportation. In this case, the trays could be directly extracted from the housing by an assay instrument or, of course, manually extracted as required.

#### Claims

1. An assay assembly comprising a chip (10) on which an array of reactive species is immobilised, the chip being located in a storage well having a base and side walls.
2. An assembly according to claim 1, further comprising a protective, removable packaging provided over the storage well.
3. An assembly according to any of the preceding claims, wherein the chip substantially fills the area of the base.
4. An assembly according to any of the preceding claims, wherein the chip is retained in the storage well by retaining means.
5. An assembly according to claim 4, wherein the retaining means comprises one or more hot or cold formed projections on the inner surface of the side wall.
6. An assembly according to any of the preceding claims, further comprising a carrying tray for carrying one or more storage wells for use with a chip

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processing instrument.

7. An assembly according to claim 6, further comprising a plurality of carrying trays arranged in a stack. 5
8. An assembly according to any of the preceding claims, wherein the inner surface of the side wall of the storage well tapers inwardly adjacent the base.
9. An assembly according to any of the preceding claims, wherein the base is square. 10
10. An assembly according to any of the preceding claims, wherein the storage well comprises a plastics moulding. 15
11. An assembly according to any of the preceding claims, the assembly having a plurality of the storage wells fixed together in an array. 20
12. An assembly according to claim 11, wherein the array comprises three storage wells, preferably arranged in a line.
13. An assembly according to claim 11 or claim 12, when dependent on claim 10, wherein the storage wells in the array are made from a single plastics moulding. 25
14. An assembly according to any of the preceding claims, further comprising a protective, removable packaging over the or each storage well. 30

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